**Class Discussion: Nov 6th**

**Systems of linear equations: 2 unknowns**



Solve each of the following systems of linear equations by **Gaussian elimination**. Determine which are *inconsistent* and which are *dependent*. Check your answers if time permits. \*

1. 7x + 2y = 47

 5x – 4y = 1

1. 2x – 5y = 1

 7x + 3y = 24

1. 5x – 10y = 3

 x – 2y = 8

1. 3x + 4y = 10

 4x + y = 9

1. x + 2y = 13

 3x + 4y = 14

1. 4x + 7y = 29

x + 3y = 11

1. 15x + 77y = 92

55x – 33y = 22

1. 3x = 7y

12y = 5x – 1

1. x – y = 5

 x/4 – y/5 = 2

1. 5(x + 2y) – (3x + 11y) = 14

 7x – 9y – 3(x – 4y) = 38

1. x/2 – y/5 = 4

 x/7 – y/15 = 3

1. 3x – y = 8

 33x – 11y = 88

\* Problems from Hall & Knight, Elementary Algebra (1896)

**Story Problems: Two Unknowns**

1. A sum of $7 is made up of 46 coins which are either quarters or dimes; how many are there of each?
2. A father is four times as old as his son; in 24 years he will only be twice as old; find their ages.
3. The sum of the ages of Agnes and Boris is 30 years, and five years hence Agnes will be three times as old a Boris; find their present ages.
4. I spend $69.30 in buying 20 yards of calico and 30 yards of silk; the silk costs as many quarters per yard as the calico costs cents per yard; find the price of each.
5. Alyosha and Bob start from the same place walking at different rates; when Alyosha has walked 15 miles Bob doubles his pace, and 6 hours later passes Alyosha; if Alyosha walks at the rate of 5 miles an hour, what is Bob’s rate at first?
6. In a certain examination the number of successful candidates was four times the number of those who failed. If there had been 14 more candidates and 6 less had failed, the number of those who passes would have been five times the number of those who failed. Find the number of candidates.
7. An estate was divided among three persons in such a way that the share of the first was three times that of the second, and the share of the second twice that of the third. The first received $900 more than the third. How much did each receive?
8. The length of a room exceeds its breadth by 3 feet; if each had been increased by 2 feet, the area would have been increased by 60 feet; find the original dimensions of the room.

*It is no easy thing to tell a story plainly and distinctly by mouth; but to tell one on paper is difficult indeed, so many snares lie in the way. People are afraid to put down what is common on paper, they seek to embellish their narratives, as they think, by philosophic speculations and reflections; they are anxious to shine, and people who are anxious to shine can never tell a plain story.*

- George Borrow, 1851

\*Problems from Hall & Knight, **Elementary Algebra** (1896)